

By using the perennial species exclusively or mainly, it would be possible to depend solely or essentially upon specimens thus attached, and having these always in reserve, ruthlessly to exterminate any young individuals which might spring up at inconvenient times and places or in superabundant numbers, although it is more probable that our marine friends would in most cases save all trouble upon this point by anticipating the process.

Whoever among the managers of our public institutions will have the enterprise to try this experiment will probably set at rest one of the unsolved problems of aquarian management, and open up a new field of public interest and of scientific research by largely extending the list of animals which it is possible to keep in a state of health in the marine aquarium.

A. W. WILLS

THE NEW OBSERVATORY AT VIENNA

IN the *Monthly Notices* for November is an interesting paper by Dr. De la Rue on the preparations which are being made on the Continent for promoting physico-

astronomical observations. The paper refers mainly to the new observatory which is being erected at Vienna, and the illustrations which we are able to give will enable our readers to form some idea of the plan of the building.

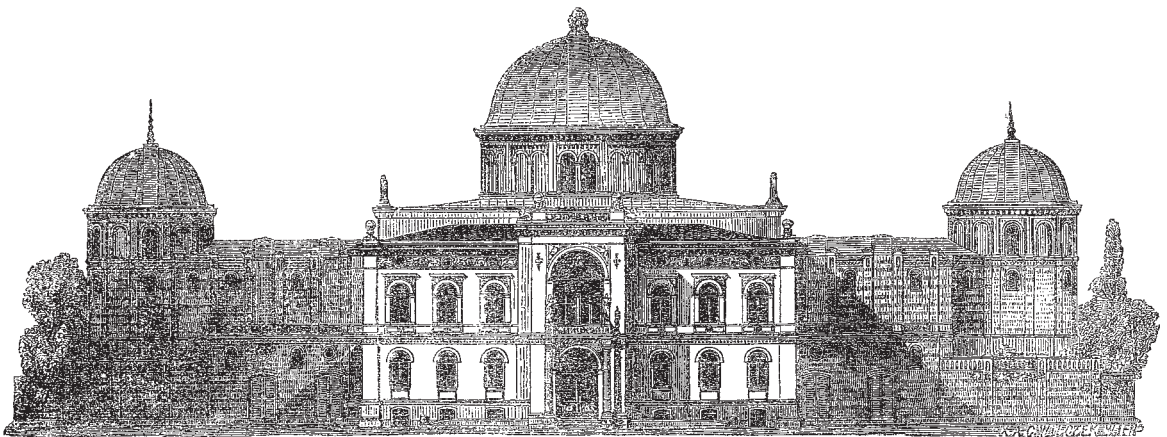


FIG. 1 represents the south front of the observatory, the central entrance opening into the dwelling of the director, which is to the south of the large dome.

"It is scarcely necessary for me to tell the Fellows of the Royal Astronomical Society," Dr. De la Rue says, "that their favourite branch of our science, namely, the physics of astronomy, is now engaging the earnest attention of foreign professional astronomers to a greater extent than obtained only a few years ago, and that grand

preparations are now being made at several Continental State-observatories to grapple with the important truths which can only be revealed by adequate instrumental appliances such, indeed, as are far beyond the reach of most private fortunes. It was a matter of satisfaction to me to learn that photographic observatories are to be

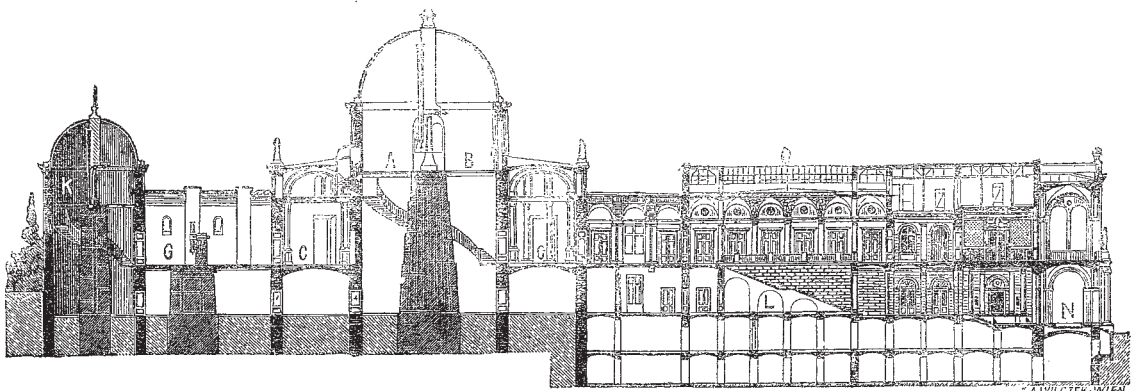


FIG. 2, drawn on a smaller scale than Fig. 1, shows the general arrangement of the establishment in plan. A B is the great dome, 42 feet in diameter; this dome is surrounded at its lower portion by the central hall C C, which will contain all the portable instruments. From this central hall access is obtained to the terraces D, adapted for observations with portable instruments or the naked eye. The rooms E and F will receive the meridian instruments, and in G is to be placed the prime vertical. The smaller domes, H, I, and K are each 25 feet in diameter; besides the instruments spoken of in the text, one of these domes will most probably be equipped with an altazimuth or a heliometer.

included in at least two of those observatories, namely, in Paris and Vienna."

Dr. De la Rue refers to the old Vienna Observatory, which was founded in the year 1753, and rebuilt in 1826-27, but has been long so crowded round by other buildings as seriously to interfere with the satisfactory performance of astronomical work. After repeated repre-

sentations to the Austrian Government, the present Director, M. C. von Littrow, obtained in 1873 the sanction of the Minister of Public Instruction, K. von Stremayer, for the erection of the building which is now approaching completion. The new observatory is about three miles to the north of the centre of the city, and was not commenced before Prof. Weiss, First Assistant at the Obser-

vatory, had visited the principal observatories in England and America, and the workshops of the first instrument makers in these and Continental countries. The site of the observatory, of which the foundation-stone was laid in June 1874, is a plateau of between 14 and 15 acres at an elevation of about 200 feet above the mean level of Vienna. The observatory is 330 feet long in the direction of north-south, and 240 feet in that of east-west. It is hoped that the building will be completed in 1877, and Dr. De la Rue, judging from the progress which had

ferable for the dwellings to have been detached, as the heated air emanating from them will be liable to disturb the definition of the instruments." We hope, however, that practically no real inconvenience will arise from this arrangement.

"From the preceding description it will be seen," Dr. De la Rue concludes, "that Austria will not be left behind in the steps which are being taken to promote physico-astronomical observations; and I sincerely hope that our own Government will ere long adopt measures to ensure to England a fair chance of honourably competing in the advancement of that branch of astronomical science which the Fellows of this Society have done so much to promote mainly from their own individual resources."

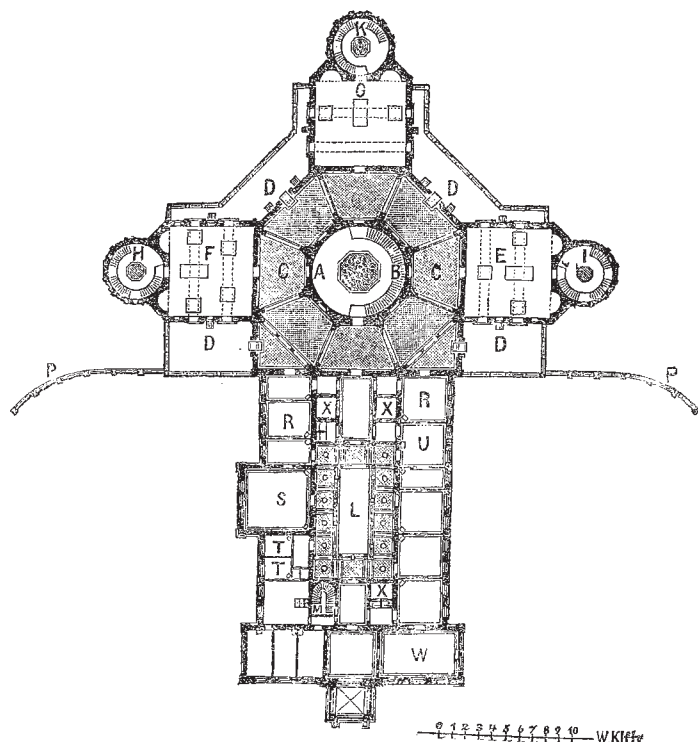


FIG. 3.—It will be seen that the first floor of the director's house is on the same level as the ground floor of the observatory; the apartments of the assistant astronomers are on the ground floor. C C show the section of the gallery surrounding the ground-floor of the great dome; L, the section of the staircase. Referring again to Fig. 2, W is the director's house in plan; S and T T, the library; U, the lecture theatre; and lastly, R, the offices.

been made when he visited it in October last, believes it will be ready to receive the instruments at that time.

The principal instrument of the observatory will be a refractor of about 26 inches aperture, to occupy the central dome of 42 feet internal diameter, both of which, as well as three smaller domes, two of which are shown in Fig. 1, are being constructed by Mr. Howard Grubb of Dublin. One of these smaller domes will contain an equatorial refractor of 12 inches aperture, by Mr. Alvan Clark, of Cambridgeport, Mass. "These two instruments, together with a meridian circle having a telescope of 8 inches aperture, and augmented by the instruments in the old observatory, will constitute the first equipment of the new establishment. Later on it is intended to place in the third dome an equatorial reflector specially adapted for photography, and also a prime vertical instrument in the room near the fourth dome, to the north of the central dome."

One arrangement, which Dr. De la Rue, with some justice, considers a drawback to an otherwise admirably arranged establishment, is that the buildings comprise the dwellings of the director, and apartments for the assistant astronomers. Although this arrangement will no doubt add to the comfort of the astronomers, "it would have been," Dr. De la Rue says, "in my opinion, pre-

THE ROYAL SOCIETY COMMITTEES

FEW outsiders are aware of the amount of administrative work done by the Royal Society by means of its numerous committees. The work in this direction done during the past year is so well set forth in the recent anniversary address (just published) of the president, Dr. Hooker, that an abstract of it will no doubt be interesting to our readers. The principal committees are the Eclipse Committee, the Transit Naturalists' Committee, the Arctic Committee, and the *Challenger* Committee.

The first enterprise referred to by Dr. Hooker was the Arctic Expedition, in the scientific equipment and instructions of which the Royal Society took an important part. Referring to the cruise of the *Valorous*, Dr. Hooker stated that it was through the representations of the Royal Society that Mr. Gwyn Jeffreys and an assistant were appointed to carry on temperature soundings and deep-sea dredging.

"Capt. Loftus Jones and Mr. Jeffreys dredged on the Greenland coast from 70° 30' N. lat. to the entrance of Davis's Straits, and in the Atlantic as far as 25° 58' W. long., in depths of which the greatest was 1,785 fathoms; and temperature-soundings were taken at eleven out of the twenty stations indicated in the Admiralty Instructions.

"Among the valuable results obtained are the fact that the fauna of the Greenland seas agrees with its land flora in being mainly Norwegian, there being (with the exception of the Echinoderms) an absence of many North-American forms, which, as it appears, have not been found eastward of the meridian of

Cape Chidley in Labrador. A remarkable mollusk, previously dredged at a depth of about 1,000 fathoms off the coast of Portugal by the *Porcupine*, and which, when first found in a fossil state in the newer tertiaries of Sicily was supposed to be an extinct type, reappears in the deep waters of Davis' Straits; and a *Campanularia* was found, specifically identical with one discovered this year in the opposite hemisphere, viz. in Kerguelen's Land, by Mr. Eaton, the naturalist of the Transit of Venus Expedition to that island. A most singular sponge-like diatom, named by Dr. Dickie *Synedra Jeffreysi*, with living *Globigerina* entangled in the colloidal collecting-matter of its frustules, was taken in the towing-net.

"The existence of a remarkable elevation of the floor of the ocean was ascertained in lat. 56° N., long. 34° 42' W., where soundings of 690 fathoms were obtained between depths of 1,450 fathoms on one side and 1,230 fathoms on the other—an interesting fact when taken in connection with H.M.S. *Bull-dog* having found a similar elevation in lat. 59° 40' N. and long. 29° 30' W. It makes known the probable existence of a sub-oceanic ridge running N.E. and S.W. between Great Britain and Greenland."

With regard to the Transit of Venus Expedition, Dr. Hooker referred to the results obtained by the naturalists, who, on the recommendation of the Council, were appointed to accompany the expeditions to Rodriguez and Kerguelen's Land; in the former case Messrs. Balfour, Gulliver, and Slater, and in the latter the Rev. A. E. Eaton. With many of the results obtained by these naturalists our readers have already been made acquainted.